



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,833	03/05/2002	Gye-Tak Ahn	SEC.927	4776

7590 09/08/2003

VOLENTINE FRANCOS, P.L.L.C.  
Suite 150  
12200 Sunrise Valley Drive  
Reston, VA 20191

[REDACTED] EXAMINER

KACKAR, RAM N

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

1763

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/087,833	AHN, GYE-TAK	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ram N Kackar	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 05 March 2002.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-17 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                           | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 . | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 4 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In this instance the citation of susceptor comprising non-ferrous metal is not adequately explained. The specification appears to give the example of non-ferrous metal as being a rubbery material, which may contain silicon component. It seems that a non-ferrous material would be more appropriate.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5-9, 11-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants admitted prior art (AAPA) in view of Tanaka et al (US 6042653).

AAPA discloses a plate assembly comprising underlying plate and pad in the shape of a disk, members for positioning, flange and fence, lift pin, lifter assembly and a robot arm (Fig 1 and 2).

Art Unit: 1763

AAPA does not disclose grooves on the substrate support and a vacuum system.

Tanaka et al disclose a processing chamber with a disk like susceptor (Col 2 lines 19-21) having grooves which are designed to be in communication with the process chamber vacuum to eliminate differential pressure between the vacuum chamber and the back of the substrate (Fig 4-5 and Col 5 lines 17-65), vacuum system to go below 10 mTorr (Col 4 lines 3-5) and a transfer arm (Col 4 line 47).

Therefore it would have been obvious for one of ordinary skill in the art to have grooves in the susceptor so as to avoid dislocating the substrate due to differential pressure.

5. Claims 4, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants admitted prior art (AAPA) in view of Tanaka et al (US 6042653) as applied to claims 1 and 7 and further in view of Miyashita et al (US 5039388).

As above AAPA does not disclose the material of the susceptor and electrodes for generation of plasma. Tanaka et al disclose susceptor to be of carbon or ceramic which comprises metal in the form of a compound. Tanaka et al however do not expressly disclose susceptor comprising non-ferrous metal.

Susceptors made of non-ferrous metals like aluminum are very common for the reason of being stable in corrosive plasma. Miyashita et al disclose a susceptor of aluminum (Abstract) and electrodes (Col 1 lines 15-38).

Therefore it would have been obvious for one of ordinary skill in the art to have a susceptor of anodized aluminum for it's anti corrosion property and to have electrodes for generation of plasma as per the teaching of Miyashita et al.

Art Unit: 1763

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants admitted prior art (AAPA) in view of Tanaka et al (US 6042653) as applied to claims 9 and further in view of Thomas et al (US 6116848).

(AAPA) or Tanaka et al disclose a transfer arm but do not disclose the shape of the end effector.

The end effectors are generally Y shaped so as to clear lift pins while loading or unloading a substrate. Thomas et al disclose such an arm (Fig 1).

Therefore having an end effector with bifurcated ends would have been obvious for one of ordinary skill in the art at the time of invention.

7. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants admitted prior art (AAPA) in view of Tanaka et al (US 6042653) as applied to claims 7 and further in view of Machida et al (US 4732761).

(AAPA) or Tanaka et al do not disclose an ion source expressly but the electrodes of Tanaka et al are source of ions as taught by Machida et al also (Fig 1 and Col 1 lines 38-56). Machida et al teaches other type of ion source too (Fig 2).

Therefore having ion source for processing would have been obvious for one of ordinary skill in the art at the time of invention

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

Art Unit: 1763

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK

GREGORY MILLS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700